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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,794	11/07/2003	Toru Hirai	51270-305144	4793

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EXAMINER

BRINEY III, WALTER F

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,794

Applicant(s)

HIRAI ET AL.

Examiner

Walter F. Briney III

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-21, 41-48 and 53-71 is/are pending in the application.
- 4a) Of the above claim(s) 16-20, 41-48, 61, 62, 67 and 68 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-15 and 21 is/are allowed.
- 6) ☒ Claim(s) 53-60, 63-66 and 69-71 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/8/05 and 11/7/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of species I, as depicted in figure 1, in the reply filed on 21 February 2006 is acknowledged. The applicant's clarification as to which claims read on figure 1 is greatly appreciated.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claims 53-60, 63-66 and 69-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claims 53-60, 63-66 and 69-71 all recite a plurality of alternative limitations, e.g. "a space provided therein with... one or a plurality of microphones" and "estimating individual transfer functions... or a plurality of transfer functions." Based solely on these two example limitations, four different inventions are defined. Note that more than four inventions are defined in each claim (claim 53 appears to define 16!) However, the claims are not generic to all four inventions. MPEP § 806.04(d) defines a generic claim:

"In general, a generic claim should require no material element additional to those required by the species claims, and each of the species claims must require all the limitations of the generic claim."

In the instant case, the elected species (figure 1) does not require all possible paths of the alternative limitations. Therefore, as claims 53-60, 63-66 and 69-71 define a

plurality of inventions not generic to the elected species, it cannot be determined what the metes and bounds of the claims are.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

2. Claims 11-15 and 21 are allowed.

Claim 11 is limited to "a stereo echo canceller." The prior art is replete with stereo echo cancellers, however, none are arranged as particularly recited in this claim. For example, Berthault et al. (US Patent 6,738,480) discloses a device for cancelling stereophonic echo with frequency domain filtering. See Abstract. Figure 1 depicts a "microphone" 8, which according to column 5, line 65, through column 6, line 4, can be duplicated to provide echo cancellation for a second "microphone," and two "loudspeakers" 7, thereby forming the "four audio transfer systems." Figure 1 depicts the "first and third filter sections," and as noted above, the first and third are duplicated to provide "second and fourth filter sections." Figure 1 depicts a subtractor 17 that corresponds to "the first subtracting section." Again, the subtractor is duplicated in a second echo canceller, the duplicated subtractor corresponds to "the second subtracting section." Figure 1 depicts an adaptation section 20 that corresponds to the "transfer function calculating section." The adaptation section includes a coherence calculation section 40 (i.e. a cross-spectrum calculator) that is used to generate a parameter used in transfer function calculations as recited. However, said coherence

calculation section does not perform a calculation between “a sum signal and difference signal of stereo audio signals to be reproduced by said respective loudspeakers and the collected audio signals.” Instead, the coherence calculation section performs a calculation based on X_1 and X_2 , which are simply stereo audio signal to be reproduced.

While several prior art references teach transfer function calculating sections that use sum signals and difference signals of stereo audio signals to be reproduced by respective loudspeakers, none teach the cross-spectrum calculation of the claim. For example, Shimada depicts several echo cancellers that use sum and difference signals, but none of the filters use both. Thus, claim 11 is allowable over the cited prior art.

Claims 12 and 21 are limited to “the stereo echo canceller of claim 11” and “a stereo sound transfer apparatus associated to two spaces...wherein the stereo echo canceller recited in claim 11 is arranged in each space,” respectively. Thus, claims 12 and 21 are allowable over the cited prior art for at least the same reasons as claim 11.

Claim 13 is limited to “a stereo echo canceller.” This claim recites essentially the same limitations as claim 12, and thus, is allowable over the cited prior art for at least the same reasons.

Claims 14 and 15 are both limited to “the stereo echo canceller of claim 13.” Thus, claims 14 and 15 are allowable over the cited prior art for at least the same reasons as claim 13.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter F. Briney III whose telephone number is 571-272-7513. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SINH TRAN
SUPERVISORY PATENT EXAMINER

WFB